Gesture controlled vehicle

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Planned Features

- Gesture based control interface with hands.
- Engage/dis-engage and start/stop features.
- Speed control for movement.
Implemented features

- Remote control interface instead of wearable interface.
- Push buttons and indicators with LED’s for Engage and Start functions.
- Speed Control
Hardware Used

- Arduino Uno microcontroller boards
- Xbee Communication Chips
- 20A dual DC motor driver
- MPU-6050 6-axis gyroscope and accelerometer
- LEDs, Pushbuttons and packaging material.
- RC car
## Cost Involved

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arduino Uno (2)</td>
<td>$40</td>
</tr>
<tr>
<td>Xbee S2 (2) and Shields</td>
<td>$50</td>
</tr>
<tr>
<td>20A Dual Dc Motor Driver</td>
<td>$12</td>
</tr>
<tr>
<td>MPU6050</td>
<td>$11</td>
</tr>
<tr>
<td>Packaging and Misc.</td>
<td>$25</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$138</strong></td>
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</tbody>
</table>
Changes

• Previous idea for deriving gestures is not so user friendly.
• Remote control is much better than a wearable interface in some cases.
• Easier to learn and exercise.
Working

• Multi-loop algorithm
• Threshold Division
x = accel_t_gyro.value.y_accel;
x = map(x, -8000, 13000, 200, 0);
x = constrain (x,0,200);
val = accel_t_gyro.value.z_accel;
val = map(val, -15000, 15000, 0, 180);
val = constrain (val,0,180);
encodedValue = val*100000 + x;
Serial.println(encodedValue);
while(start == 0)
{
    Serial.println(disEngage);
delay(100);
    if(digitalRead(6) == 1)
    {
        while(digitalRead(6) == 1)
        {
        }
        start = 1;
digitalWrite(8,HIGH);
    }
} 
if(digitalRead(6) == 1)
{
    while(digitalRead(6) == 1)
    {
        engage = 0;
digitalWrite(9,LOW);
    }
} 
if(digitalRead(6) == 1)
{
    engage = 1;
digitalWrite(9,HIGH);
} 
while(engage == 1)
{
    Serial.println(encodedValue);
delay(100);
    if(digitalRead(7) == 1)
    {
        while(digitalRead(7) == 1)
        {
        }
        engage = 0;
        digitalWrite(9,LOW);
    }
} 
if(digitalRead(7) == 1)
{
    engages = 1;
    digitalWrite(9,HIGH);
} 
}
questions!

Thank You